

September 2, 2003

STATE OF CALIFORNIA
STATE WATER RESOURCES CONTROL BOARD

ORDER: WQO 2003 – 0011 - UST

In the Matter of the Petitions of
SUI LAU AND YUT BING LEUNG LAU

For Review of Denial of Petroleum Underground Storage Tank Site
Closure at 3938 State Street, Santa Barbara, California and Other Actions and
Inactions of Santa Barbara County.

BY THE BOARD:

Sui Lau and Yut Bing Leung Lau (Petitioners) seek State Water Resources Control Board (SWRCB) review of the Santa Barbara County Fire Department, Protection Services Division (County) decision to deny closure of Petitioners' case of an unauthorized release(s) from petroleum underground storage tanks (USTs) located at 3938 State Street, Santa Barbara. Petitioners also seek SWRCB review of other actions and inactions by the County that pertain to the County's oversight of Petitioners' site and closure denial. For the reasons set forth below, this order determines that Petitioners' case be closed and no further action related to the UST release(s) is required.

I. Statutory & Regulatory Background

The SWRCB's Local Oversight Program (LOP) provides for local agency abatement of, and oversight of the abatement of, unauthorized releases of hazardous substances from USTs. In implementing the LOP, the SWRCB is authorized to enter into contracts with local agencies to oversee site cleanup of unauthorized releases. (Health and Safety Code, § 25297.1, subd. (b).) The SWRCB also adopted procedures by which a responsible party may petition the SWRCB for review of actions or decisions by an LOP agency. (Health and Safety Code, § 25297.1, subd. (d)(3), SWRCB Resolution 88-23.) The County has a contract with the SWRCB and is participating in the LOP.

Owners and operators of USTs and other responsible parties can petition the SWRCB for a review of their case if they feel the corrective action plan for their site has been satisfactorily implemented, but closure has not been granted. (Health and Safety Code, § 25296.40., subd. (a)(1).)

Petitioners filed two petitions with the SWRCB. The first petition, which is dated January 24, 2003, seeks site closure and was filed pursuant to Health and Safety Code section 25296.40. The second petition is dated February 13, 2003, and was filed pursuant to SWRCB Resolution No. 88-23. This petition seeks site closure and alleges other inappropriate activity on the part of the County.¹ The petitions have been consolidated for purposes of SWRCB consideration.

Petitioners also requested the SWRCB to stay the County requirements for quarterly sampling and a workplan. The County suspended monitoring requirements pending the outcome of the petitions. The SWRCB denied Petitioners' request for a stay as it related to the workplan requirement because it failed to meet applicable criteria. Petitioners resubmitted their stay request, and the County subsequently suspended the workplan requirement. Since the County ultimately suspended the monitoring and workplan requirements pending review of the petitions, the request for a stay became moot. On July 24, 2003, the SWRCB's Chief Counsel informed Petitioners that the SWRCB would not act upon Petitioners' resubmitted stay request.

Several statutory and regulatory provisions provide the SWRCB, Regional Water Quality Control Boards (RWQCBs), and local agencies with broad authority to require responsible parties to clean up a release from a petroleum UST (e.g., Health and Safety Code, § 25296.10; Wat. Code, § 13304, subd. (a).) The SWRCB has promulgated regulations specifying corrective action requirements for petroleum UST cases. (Cal. Code Regs., tit. 23, §§ 2720-2728.) These regulations

¹ Petitioners also requested the Underground Storage Tank Cleanup Fund (Fund) Manager to conduct a five-year review of their tank case, as authorized by Health and Safety Code section 25299.39.2, subdivision (a). After conducting the review, Section 25299.39.2 allows the Fund Manager to recommend UST case closure to the SWRCB. The Fund Manager has not completed the review, and inasmuch as the SWRCB is considering these petitions that resolve the issue of site closure, review under Section 25299.39.2 is not necessary.

define corrective action as "any activity necessary to investigate and analyze the effects of an unauthorized release, propose a cost-effective plan to adequately protect human health, safety and the environment and to restore or protect current and potential beneficial uses of water, and implement and evaluate the effectiveness of the activity (ies)." (Cal. Code Regs., tit. 23, § 2720.)

Corrective action consists of one or more of the following phases: (1) preliminary site investigation, (2) soil and water investigation, (3) corrective action plan implementation, and (4) verification monitoring. (Cal. Code Regs., tit. 23, § 2722, subd. (a).)

The preliminary site assessment phase includes initial site investigation, initial abatement actions, initial site characterization and any interim remedial action. (Cal. Code Regs., tit. 23, § 2723, subd. (a).) Corrective action is complete at the conclusion of the preliminary site assessment phase, unless conditions warrant a soil and water investigation. A soil and water investigation is required if any of the following conditions exists: (1) there is evidence that surface water or groundwater has been or may be affected by the unauthorized release; (2) free product is found at the site where the unauthorized release occurred or in the surrounding area; (3) there is evidence that contaminated soils are or may be in contact with surface water or groundwater; or (4) the regulatory agency requests an investigation based on the actual or potential effects of contaminated soil or groundwater on nearby surface water or groundwater resources, or based on the increased risk of fire or explosion. (Cal. Code Regs., tit. 23, § 2724.)

The purpose of a soil and water investigation is "to assess the nature and vertical and lateral extent of the unauthorized release and to determine a cost-effective method of cleanup." (Cal. Code Regs., tit. 23, § 2725, subd. (a).) Section 13267, subdivision (b) of the Water Code provides that: "...the regional board may require that any person discharging or proposing to discharge waste...that could affect the quality of waters within its region shall furnish...those technical and monitoring program reports as the Board may specify. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports."

SWRCB Resolution No. 92-49, *Policies and Procedures for Investigation and Cleanup and Abatement of Discharges Under Water Code §13304* also applies to petroleum UST cases. Resolution No. 92-49 directs that water affected by an unauthorized release attain either background water quality or the best water quality that is reasonable if background water quality cannot be restored. (SWRCB Resolution No. 92-49, section III.G.) Any alternative level of water quality less stringent than background must be consistent with the maximum benefit to the people of the state, not unreasonably affect current and anticipated beneficial use of affected water, and not result in water quality less than that prescribed in the water quality control plan for the basin within which the site is located. (*Ibid.*)

Resolution No. 92-49 does not require that the requisite level of water quality be met at the time of site closure. Resolution No. 92-49 specifies compliance with cleanup goals and objectives within a reasonable time frame. (*Id.* at section III.A.) Therefore, even if the requisite level of water quality has not yet been attained, a site may be closed if the level will be attained within a reasonable period.

The Central Coast RWQCB (CCRWQCB) Basin Plan (Basin Plan) designates existing and potential beneficial uses of groundwater throughout the Central Coast Basin as municipal and domestic supply (MUN), industrial supply (IND), and agricultural supply (AGR). (CCRWQCB & SWRCB, Water Quality Control Plan, 1994 at p. II-1.)

The Basin Plan contains the following narrative MUN water quality objective for organic chemicals: "Groundwaters shall not contain concentrations of organic chemicals in excess of the limiting concentrations set forth in California Code of Regulations, Title 22" (*Id.* at III-14). These Department of Health Services (DHS) regulations set the maximum contaminant level (MCL) for 1,2 Dichloroethane (1,2 DCA) in drinking water at 0.5 parts per billion (ppb). 1,2 DCA is an additive historically used in leaded gasoline and also a breakdown product of other chlorinated solvents commonly used in the dry cleaning industry. DHS has set primary MCLs for drinking water of 1 ppb benzene, 150 ppb for toluene, 700 ppb for ethylbenzene, and 1,750 ppb for xylene. DHS has not established secondary MCLs for these petroleum constituents.

II. Site Background

A. Site Use

Petitioner's site is located at 3938 State Street, Santa Barbara. The site is a commercial structure and parking lot in a mixed light commercial and residential area (see attached figure). The site was used as an electrical contractor's shop from 1957 until 1975.

B. Groundwater Basin

The site is located in the Foothill Groundwater Basin.² This basin is described as generally unconfined water-bearing Holocene and Pleistocene age alluvium overlying the Santa Barbara Formation, the main water-bearing geologic unit. The Santa Barbara Formation consists mainly of massive, unconsolidated marine deposits of sand, silt, and clay and ranges up to 400 feet thick. Where present, a low permeability zone found in the upper part of the Santa Barbara Formation hydraulically separates groundwater in the formation from the overlying alluvium. The confining zone ranges in thickness from a few feet to more than 100 feet where present, separating the water producing aquifer in the Santa Barbara Formation from shallow groundwater in the overlying alluvium. The confining zone has been identified at 210 feet below ground surface (bgs) in the vicinity of the site.

Groundwater gradients in the shallow overlying alluvium were last measured during initial site investigation in 1994, when groundwater flowed to the northwest at 0.091 ft/ft. Monitor well MW-1 was destroyed during remedial action in 1995, and only two monitor wells remain on-site, making groundwater gradient determination impossible without at least one additional monitor well. However, a northwesterly groundwater flow direction was interpolated from nearby sites in 2002.³

C. Nearby Water Supply Wells

A 1951 report identifies 21 private water supply wells within one-quarter mile of the site, the details and fate of which are not known by the County.⁴ However, as part of a water well

² Department of Water Resources Bulletin 118 Public Review Draft Update, April 2003.

³ July 5, 2002, Request for Site Closure, Campbell Geo, Inc.

⁴ June 12, 2003, Closure Petition Response-Addendum, County of Santa Barbara.

survey performed for Petitioners' July 2002 site closure request, the County confirmed the absence of active domestic water system permits within one-quarter mile of the site.⁵ The nearest known private water supply well is located approximately two hundred feet to the northwest of the site at 3944 State Street, in the downgradient direction of shallow groundwater flow.⁶

This private water supply well is reported as inactive since the mid-1990s.⁷ The well has a 58-foot annular seal and is completed in the main water bearing Santa Barbara Formation. The well has 75 feet of perforations or screening below 235 feet bgs, to a total completed depth of 335 feet bgs. The ten-inch gravel pack of the well extends from 58 to 330 feet bgs. Another private water supply well is located several hundred feet in the upgradient direction of shallow groundwater flow and is screened intermittently between 190 feet bgs and 535 feet bgs, with a 55-foot deep annular seal. The nearest active public water supply well is located approximately 2,200 feet west of the site.⁸

Measurement of static water levels in 2002 showed a 45 foot difference in groundwater head between on-site monitor wells (approximately 162 feet elevation above mean sea level (asl) and the downgradient inactive water supply well (117 feet asl).⁹ The 45 foot difference in head over a 200 foot lateral distance demonstrates hydraulic separation between the Santa Barbara Formation, in which the nearest offsite water supply well is completed, and the overlying Pleistocene and younger alluvium, in which on-site monitor wells are completed.

D. UST System Removal

Petitioners report that the UST system has not been used since approximately 1975. Two USTs were located and removed from the site in July 1994. One 1000-gallon tank was found half filled with hydrocarbon product, and a second 500 gallon tank was found half filled with water, with approximately one inch of hydrocarbon product floating on the surface.¹⁰ Samples of the

⁵ July 5, 2002, Request for Site Closure, Campbell Geo, Inc.

⁶ *Ibid.*

⁷ *Ibid.*

⁸ *Ibid.*

⁹ *Ibid.*

¹⁰ August 22, 1994, Subsurface Investigation and Remedial Action, Metcalf and Eddy Corporation.

product obtained from both tanks during removal contained constituents of leaded gasoline, consistent with the date the tanks were reported no longer in service.

E. Remediation of Soil Contamination

Initial Site Assessment and Characterization

Soil samples obtained from 12 soil borings during initial site assessment¹¹ and 14 additional soil borings during additional subsurface investigation at the site¹² were used to identify areas and depths of petroleum constituent contamination¹³ in soil. Gasoline contaminated soils identified during initial site assessment and additional subsurface investigation were located in soil beneath the former UST system. Most of the soil contamination was located between 20 and 30 feet bgs. Benzene, toluene, ethylbenzene, xylene, and total petroleum hydrocarbons were detected in soil samples at concentrations as high as 100 mg/kg, 650 mg/kg, 230 mg/kg, 1,100 mg/kg, and 25,000 mg/kg, respectively. The concentration of 1,2 DCA in all soil samples was below detection limits. However, detection limits for 1,2 DCA were elevated for some soil samples. Groundwater levels during initial site assessment in 1994 were between 63 and 71 feet bgs in monitor wells MW-1, MW-2, and MW-3. No petroleum constituents or 1, 2 DCA were detected in groundwater at that time.

Overexcavation of Contaminated Soils

In 1995, accessible, heavily contaminated soils were overexcavated using two and three foot diameter soil augers in a grid pattern.¹⁴ One hundred fifty six soil augering holes were completed, and 1667 tons of soil were removed from the site. The maximum soil augering penetration was between 6 and 80 feet bgs, with most augered holes completed between 35.5 and 49.5 feet bgs.¹⁵ The holes were refilled with cement grout. During overexcavation, soil samples were obtained and confirmed that the most heavily contaminated soil was located between 20-30

¹¹ May 18, 1994, Site Assessment Report, Secor Corporation.

¹² August 22, 1994, Subsurface Investigation and Remedial Action, Metcalf and Eddy Corporation.

¹³ The terms "contaminate" and "contamination" as used throughout this order refer to the common usage of these terms, which is to make impure or unclean and the state of being impure or unclean, respectively.

¹⁴ December 10, 1995, Third Quarter Status Report, Metcalf and Eddy Corporation.

¹⁵ Mean maximum soil auger depth +/- one standard deviation.

feet bgs, and that the contamination had been impeded from extensive downward migration by a clay layer.¹⁶

However, petroleum constituents were detected in 33 of 50 verification soil samples obtained from the maximum penetration of the soil augering holes. The average depth of the 33 verification soil samples that contained petroleum constituents was 40.6 feet bgs, with detections of petroleum constituents as deep as 48 feet bgs. Benzene, toluene, ethylbenzene, xylene, and total petroleum hydrocarbons were detected in these soil samples at concentrations up to 1.2 mg/kg, 1.1 mg/kg, 0.24 mg/kg, 1.6 mg/kg, and 18.0 mg/kg, respectively. Thus, overexcavation had reduced measured maximum petroleum constituent concentrations in soil later submerged by groundwater to between 0.07 percent to 1.2 percent of previous values. Overexcavation removed most of the soil contamination mass outside the footprint of the site building.

After overexcavation, residual petroleum constituents remained in soil below the site building (see commercial building on attached figure). In addition, some petroleum constituents were not removed from below the deepest penetration of the soil augers, above the static level of site groundwater at that time.

Soil Vapor Extraction

A soil vapor extraction system was installed at the site in August 1995 to remediate impacted soils under the site building not accessible by overexcavation. Soil vapor extraction wells were installed in the source zone area at angles to access contamination under the site building. Soil vapor extraction tests conducted in 1995 revealed 1,2 DCA at the site for the first time at between 200 and 270 ppb.

Approximately 1239 pounds of gasoline were extracted by the soil vapor extraction system by March 1997, with a total operating time of 8383 hours. After yields diminished, indicating that the volatile petroleum constituents in soil were successfully extracted by the system, the soil vapor extraction system was removed. Verification soil sampling under the site building

¹⁶ December 10, 1995, Third Quarter Status Report, Metcalf and Eddy Corporation.

detected benzene, ethylbenzene, toluene, xylene and total petroleum hydrocarbons at concentrations up to 21 µg/kg, 19 µg/kg, 100 µg/kg, 120 µg/kg, and 24 mg/kg, respectively¹⁷, indicating that low level residual soil contamination remained beneath the site building.

F. Remediation of Groundwater Contamination

Groundwater Elevation Rise On-Site

Between 1996 and 2002, static groundwater elevation in monitor well MW-2 increased approximately 12 feet, from 51.7 feet bgs to 39.3 feet bgs, submerging some of the remaining residual petroleum constituents in soil below the maximum depth of soil auger penetration. The 58 to 73 feet bgs screened interval of MW-2 was completely submerged sometime between two consecutive monitoring events, in July 1994 (groundwater at 63 feet bgs) and September 1996 (groundwater at 51.7 feet bgs).

Detection of 1,2 DCA and other Contaminants in Groundwater

1,2 DCA was first detected in site groundwater in September 1996, from analytical samples obtained from MW-2. Concentrations of 1,2 DCA detected in MW-2 increased from 0.8 ppb in September 1996 to a maximum of 11 ppb in December 1999, when groundwater was reported at 43.50 feet bgs. Concentrations of 1,2 DCA detected in MW-2 then decreased to 0.88 ppb by November 2002 when groundwater had risen an additional 4.2 feet, to 39.30 feet bgs. 1,2 DCA was never detected in groundwater analytical samples obtained from MW-1 before the monitor well was destroyed, nor has 1,2 DCA ever been detected in groundwater analytical samples from MW-3 since monitoring began in 1994.

Since quarterly monitoring began in 1994, petroleum constituents other than 1,2 DCA have been detected once in MW-1 prior to the destruction of the monitor well, only sporadically in monitor well MW-2, and never in MW-3.

Maximum concentrations detected in groundwater include 0.58 ppb benzene, 2.1 ppb toluene, 0.8 ppb ethylbenzene and 4.2 ppb xylene. Benzene has not been detected on-site since

¹⁷ January 13, 1998, Verification Soil Sampling Report, Hayden Environmental, Inc.

1995 when it was detected in MW-1. Benzene has never been detected in MW-2, downgradient of the source zone, or MW-3. No total petroleum hydrocarbons have ever been detected in site groundwater. Methyl-tert-Butyl Ether (MTBE) has been tested for as part of routine quarterly monitoring and never detected in site groundwater.

Site groundwater analytical results, substantial changes in groundwater elevation, and timing of groundwater rise indicate that residual 1,2 DCA in soil pores and adsorbed to soil particles dissolved in site groundwater as that groundwater rose through previously unsaturated soils and increased 1,2 DCA concentrations detected in MW-2. It is probable that shallow groundwater flowed through the site to the northwest, diluted residual 1,2 DCA mass in soil and transported dissolved 1,2 DCA with groundwater flow, resulting in the increase and subsequent decrease in 1,2 DCA concentrations in site groundwater between 1996 and 2002. Active groundwater mass reduction strategies utilized by Petitioners also likely contributed to the decline of dissolved 1,2 DCA detected in MW-2.

Groundwater Mass Reduction

Oxygen Release Compound (ORC[®]) socks were inserted into MW-2 between May 1998 and December 1998. No decrease in 1,2 DCA concentrations was detected in MW-2 during application of ORC[®], and its use was discontinued.¹⁸

Over 5,800 gallons of hydrogen peroxide (H₂O₂) solution, a powerful oxidant, was injected into groundwater in MW-2 at strengths up to 20% H₂O₂ by volume during the time period of December 1999 to June 2001. Between December 1999 and February 2000, 470 gallons of H₂O₂ solution were injected.¹⁹ In June 2001, 5,365 gallons of H₂O₂ solution were pressure injected.²⁰ Concentrations of 1,2 DCA subsequently declined in MW-2. This decline was likely due both to oxidation of dissolved 1,2 DCA by the H₂O₂ solution and dilution of 1,2 DCA by the thousands of gallons of water injected and by shallow groundwater flowing through the site.

¹⁸ May 14, 1999, Groundwater Remedial Action Plan Using Hydrogen Peroxide Injection, Hayden Environmental, Inc.

¹⁹ April 30, 2000, First Quarter 2000-Hydrogen Peroxide Injection, Hayden Environmental, Inc.

²⁰ October 31, 2001, Third Quarter 2001- Groundwater Remediation/Monitoring Report, Hayden Environmental Inc.

Groundwater Contamination Remaining Onsite

After active mass reduction strategies ceased, 1,2 DCA concentrations in groundwater continued to decline for all seven quarters of monitoring in the record, from 2001 through 2002. During the same period, groundwater continued to rise in MW-2 another 1.6 feet. The continued rise in groundwater coupled with continued declines in 1,2 DCA concentration in MW-2 indicates that the small mass of 1,2 DCA accessible to site groundwater has already dissolved. No further significant increases in 1,2 DCA groundwater concentration are anticipated.

November 2002 is the last quarter of groundwater monitoring in the record. During that monitoring event, 0.88 ppb of 1,2 DCA was detected in a groundwater analytical sample obtained from MW-2. The previous seven quarterly groundwater measurements of 1,2 DCA concentration in MW-2 were all at or below 3.2 ppb, including one reproduced measurement of non-detect (less than the MCL of 0.5 ppb). Trends of 1,2 DCA concentrations obtained from groundwater analytical samples are declining since the recorded high of 11 ppb in December 1999.

G. County Case Closure Denial

The County received requests for and subsequently denied case closure five times, with requests in January 1998²¹, March 2002²², July 2002²³, December 2002²⁴ and January 2003.²⁵ Petitioners subsequently petitioned the SWRCB for review of case closure denial based on the December 2002 request for site closure.

Petitioners contend that the corrective action plan has been successfully implemented and residual 1,2 DCA at the site will not pose a risk to human health, safety or the environment. The County is concerned that groundwater downgradient of the release has not been adequately delineated or defined, that groundwater sampled from MW-2 is not representative of the site, and

²¹ January 13, 1998, Verification Soil Sampling Report, Hayden Environmental, Inc.

²² March 8, 2002, First Quarter 2002 Groundwater Monitoring Report, Hayden Environmental Inc.

²³ July 5, 2002, Request for Site Closure, Campbell Geo, Inc.

²⁴ December 7, 2002, Response to July 18, 2002 County Directive, Rempel Consulting Inc.

²⁵ January 7, 2003, Fourth Quarter 2002 Groundwater Verification Monitoring, Remediation Testing and Design, Inc.

that inactive private water supply wells within one-quarter mile of the site may be impacted by 1,2 DCA from Petitioners' release. Petitioners' contentions and our responses are discussed below.

III. Contentions and Findings

Contention 1: *Petitioners contend that there is no completed geologic pathway for 1,2 DCA to migrate to aquifers with identified beneficial uses through underlying clays, silts and clayey sands.*

Response: As discussed above, petroleum constituents were detected in 33 of 50 verification soil samples obtained from the maximum penetration of the soil augering holes. Augering holes ranged in depth from 6 to 80 feet, with most holes completed between 35.5 and 49.5 feet bgs. The average depth of the 33 verification soil samples that contained petroleum constituents was 40.6 feet bgs, with detections of petroleum constituents as deep as 48 feet bgs. Benzene, toluene, ethylbenzene, xylene, and total petroleum hydrocarbons were identified in verification soil samples at concentrations up to 1.2 mg/kg, 1.1 mg/kg, 0.24 mg/kg, 1.6 mg/kg, and 18.0 mg/kg, respectively. Although the underlying clays, silts and clayey sands substantially impeded downward migration of petroleum constituents, some contaminants from the UST system release had migrated downward to depths later submerged by rising groundwater.

Hydraulic separation of the main water bearing Santa Barbara aquifer from the overlying shallow alluvial aquifer in the vicinity of the site makes it improbable that contaminated groundwater migrated downward to the depth of the screened interval of the identified nearby offsite water supply well through underlying strata. It is also improbable that the approximately 45-foot difference in measured groundwater head between on-site monitor wells and the offsite water supply well, located 200 feet from MW-2 and screened in a different aquifer, is the result of a simple groundwater gradient as contemplated by the County.²⁶

²⁶ June 12, 2003, Closure Petition Response-Addendum, County of Santa Barbara.

A groundwater gradient of 0.091 feet per foot was reported from on-site monitor wells in 1994.²⁷ A substantially greater groundwater gradient would be required to explain the observed 45-foot difference in head. Such a groundwater gradient would not be realistic.

A more probable explanation is that the Santa Barbara Formation, in which the nearby downgradient inactive water supply well is screened, and the overlying Pleistocene and younger alluvium, in which site monitor wells are screened, are separate aquifers in the vicinity of the site, as is expected in this groundwater basin. The large observed difference in groundwater head between wells screened in these separate aquifers supports this explanation.

Potential for Completed Geologic Pathway

The construction of the nearest downgradient inactive water supply well at 3944 State Street²⁸ has resulted in a potential geologic pathway from the overlying shallow alluvial aquifer to the deeper Santa Barbara Formation. The well's 10-inch diameter gravel pack extends from 58 to 330 feet bgs, and is filled with 1/8-3/8 inch gravel.²⁹ The gravel pack likely functions as a conduit for groundwater flow between overlying and underlying aquifers. Downward groundwater flow is likely driven by the observed 45-foot difference in head between aquifers, from the overlying shallow alluvial aquifer into the main water bearing Santa Barbara aquifer. This downward groundwater flow could transport contamination present in the immediate vicinity of the well into the underlying, uncontaminated aquifer.

It is possible that dissolved 1,2 DCA detected in groundwater samples from MW-2 could continue to flow in shallow groundwater from the residual source area, past MW-2 and intercept a portion of the 10 inch diameter gravel pack of the water supply well shaft below the well's 58 foot deep annular seal. Dissolved 1,2 DCA could then migrate downward in the gravel pack of this well with groundwater flow to below 210 feet bgs and enter the Santa Barbara aquifer, where the deeper, confined aquifer has been identified in the vicinity of the site. The water supply

²⁷ August 22, 1994, Subsurface Investigation and Remedial Action, Metcalf and Eddy Corporation.

²⁸ July 5, 2002, Request for Site Closure, Campbell Geo, Inc.

²⁹ August 23, 1976, Department of Water Resources Well Drillers Report.

well is screened between 235 feet bgs and 335 feet bgs, and contaminated groundwater could enter the well at these depths.

However, the probability of 1,2 DCA contaminated groundwater from an on-site source completing this pathway at concentrations greater than MCLs is very low. Natural attenuation processes of adsorption, dilution and dispersion of dissolved 1,2 DCA flowing towards the well would likely lower dissolved 1,2 DCA concentrations to below MCLs before groundwater would intercept the gravel pack of the well. The cross sectional area of the gravel pack compared to the area of the gravel pack of the 75 foot long perforated and screened well intake provides greater than a 560 times dilution factor. The water supply well is located on the property of a commercial building currently supplied by city water. If this water supply well were activated, which is unlikely, the dilution factor would provide a large safety margin. Hydraulic separation of aquifers, natural attenuation processes and dilution factors resulting from water transported through the gravel pack of the nearby water supply well from the overlying alluvial aquifer mixing with water from the deeper, Santa Barbara Formation provide safety factors for groundwater far exceeding those required for concentrations that are orders of magnitude higher than have ever been measured at the site. This large safety margin gives confidence that identified downgradient beneficial uses of water are protected. Assuming that the known inactive downgradient water supply well, located within 200 feet of MW-2, intercepts dissolved 1,2 DCA in groundwater from the site, beneficial use of the water will not be impaired, even if much higher concentrations of 1,2 DCA were present in site groundwater.

When considering the short time frames until attainment of MCLs for 1,2 DCA (0.5 ppb) in MW-2 (months to several years, discussed below), there is minimal risk to any other unidentified water supply wells farther from the site, whether these wells are screened either in the shallow alluvium or, more likely, in the confined Santa Barbara aquifer. In this particular case, the County's requirement for additional groundwater flow and gradient determinations, and exploration for additional 1,2 DCA dissolved in groundwater is unnecessary.

Contention 2: *Petitioners contend that the 1,2 DCA concentrations detected in MW-2 originate from offsite sources. Petitioners argue that no 1,2 DCA was detected in soil samples during site investigation, and therefore 1,2 DCA concentrations detected in site groundwater are not reasonably attributable to the unauthorized release from the UST system. Petitioners argue that nearby sources of 1,2 DCA contributed to a transient pulse of 1,2 DCA that was detected in the groundwater analytical samples obtained from MW-2.*

Response: The County argues that some soil sample detection limits for 1,2 DCA were too high to exclude 1,2 DCA contamination from the site. The County also argues that 1,2 DCA was found in soil vapor at concentrations of 200 to 270 ppb during pilot testing of the soil vapor extraction system, which could only originate from on-site soil. The County states that the 12-foot rise in groundwater elevation between 1996 and 2002 is responsible for submerging petroleum constituent contaminated soils and dissolving residual 1,2 DCA into site groundwater.

1,2 DCA Attributable to Petitioners' UST System Unauthorized Release

The spatial distribution of petroleum-contaminated soil detected on Petitioners' site is attributable to an unauthorized release from Petitioners' UST system. Residual petroleum constituent contamination from that unauthorized release was detected in soil samples obtained from the termination of 33 soil augering holes during overexcavation. Groundwater later submerged this contaminated soil. 1,2 DCA was a common additive to gasoline at the time of Petitioners' UST system use. The increase of dissolved 1,2 DCA detected in MW-2 is coincident with the rise of groundwater through the zone of gasoline contamination detected from the soil samples from augering hole terminations. It is, therefore, reasonable to conclude that the 1,2 DCA detected in site groundwater originated from Petitioners' UST system unauthorized release.

Possible Upgradient Release

An identified upgradient petroleum release site is a possible source contributing to the 1,2 DCA detected in petitioner's groundwater. Site studies of this upgradient release indicate shallow groundwater flow towards Petitioners' site.³⁰ Petitioners also indicate other sites that could

³⁰ July 5, 2002, Request for Site Closure, Campbell Geo, Inc.

be possible sources of 1,2 DCA in the area. The record contains insufficient evidence to confirm or deny any sites other than Petitioners as contributing dissolved concentrations of 1,2 DCA measured in Petitioners' site groundwater.

Contention 3: *Petitioners contend that 1,2 DCA concentrations detected in site groundwater, regardless of contributing sources, are diminishing with time.*

Response: A declining trend in 1,2 DCA concentrations is detectable in MW-2. This trend is coincident with the timing of H₂O₂ injection beginning December 1999, and continued until November 2002, the last monitoring event in the record. Concentrations of 1,2 DCA declined from 11.0 ppb in December 1999 to 2.9 ppb in November 2001, when active remediation ceased. In November 2002, seven quarters after active remediation ceased and the final sampling event in the record, groundwater analytical samples from MW-2 declined further, to 0.88 ppb 1,2 DCA. If concentrations continue to decline as in the past, 1,2 DCA will reach MCLs within months to several years in MW-2.

Submerged Well Screen

The County is concerned that samples obtained from the submerged well screen of MW-2 might be unrepresentative of groundwater, that concentrations of 1,2 DCA in groundwater may be higher above the screened interval and that floating free product may remain undetected at the site. The County is correct in its concern that submerged well screens can lead to unrepresentative low measured concentrations of dissolved chemical constituents or lack of free product detection in groundwater.

However, at this site, the extent of site characterization and the substantial remedial effort undertaken by Petitioners, including overexcavation of the source area, soil vapor extraction, H₂O₂ injection, and natural attenuation, have depleted the unauthorized release source zone of contaminants above and upgradient of the screened interval of MW-2 and make it highly improbable that free product remains undetected above the screened intervals of MW-2 or MW-3.

It is also improbable that concentrations of 1,2 DCA in the groundwater above the screened interval of MW-2 are orders of magnitude higher than measured in MW-2. Even if the concentrations of 1,2 DCA above the screened interval are orders of magnitude higher, the safety margin available will protect anticipated beneficial uses. It is more probable that a remaining small residual mass of 1,2 DCA in site soil results in declining 1,2 DCA concentrations in groundwater with the same magnitude of concentrations as were detected in MW-2. Even if higher concentrations of 1,2 DCA exist above the screened interval of MW-2, a large safety factor protects beneficial uses of water from the unauthorized release, as discussed above.

The concentrations of 1,2 DCA detected in MW-2 are diminishing, with attainment of MCLs expected in months to several years. Safety factors of several orders of magnitude protect identified receptors from possible higher concentrations of 1,2 DCA undetected due to the submerged well screen in MW-2. Therefore, further characterization of shallow groundwater downgradient is not necessary.

Contention 4: *Petitioners contend that 1,2 DCA concentrations and trends indicate that no credible threat to health, safety or the environment remains that is reasonably attributable to the unauthorized release, and argue that petroleum constituents from that release have not altered the quality, nor unreasonably affected anticipated beneficial use of groundwater.*

Response: As discussed above, the 1,2 DCA detected in site groundwater is reasonably attributable to the unauthorized release for which Petitioners are responsible. At the time of the final monitoring event in the record (November 2002), the unauthorized release still altered the quality of local shallow groundwater. Trends indicate that the unauthorized release will decline below MCLs for 1,2 DCA in groundwater within months to several years.

Given the specific conditions described above, the nearest downgradient inactive private water supply well is not likely impacted by the unauthorized release and would not likely have detectable impacts if activated. The well obtains its water from a confined aquifer not likely affected by this unauthorized release. Large safety factors provide ample protection. As the County

has confirmed the absence of active domestic water system permits within one-quarter mile of the site, and given the short time frames until MCLs are met in site groundwater, no credible threat to health, safety or the environment exists from the 1,2 DCA attributed to the site's unauthorized release. The anticipated beneficial use of groundwater impacted by the unauthorized release is not unreasonably affected.

After the extensive remedial effort undertaken by Petitioners, a small residual mass of petroleum constituents remains in Petitioners' site soil. Despite the residual soil contamination, 1,2 DCA concentrations in site groundwater continue to decline. As discussed above, concentrations of 1,2 DCA in groundwater still exceed water quality objectives, but they will soon be met by the natural attenuation processes of adsorption, dilution and dispersion. Hastening the decline of additional residual contaminants at the site would require additional active remediation, at a significant cost. Even if additional active remediation were performed at the site, little benefit would result for current or anticipated beneficial uses of groundwater that does not currently meet water quality objectives for 1,2 DCA. The minimal benefit of attaining further reductions in concentrations of contaminants at this site and the fact that the use of the groundwater is not affected or threatened, make attainment of background water quality at Petitioners' site not feasible.

Although it is impossible to determine the precise level of water quality that will be attained given the contaminants that may remain at the site, a level of water quality will be attained that is consistent with the maximum benefit to the people of the state due to the following factors: (1) Given the extent of remedial action already undertaken, the cost of further reductions in concentration levels outweigh any benefits of concentration reductions; (2) The concentration of 1,2 DCA in groundwater downgradient from the source zone is only 0.33 ppb above MCLs and is declining by natural attenuation processes; (3) Nearby identified beneficial uses of water are not and will not likely be affected by residual 1,2 DCA.³¹

³¹ In approving an alternative level of water quality less stringent than background, the SWRCB has also considered the factors contained in California Code of Regulations, title 23, section 2550.4, subdivision (d). As discussed earlier, the adverse effect on shallow groundwater will be minimal and localized. There will be no adverse effect on the groundwater contained in deeper aquifers, given the physical and chemical characteristics of petroleum constituents; the hydrogeological characteristics of the site and surrounding land; and the quantity of the groundwater and direction of the groundwater flow. In addition, the potential for adverse effects on beneficial uses of groundwater is low, in light of the proximity of groundwater supply wells; the current and potential future uses of groundwater in the area; the existing

The final step in determining whether cleanup to a level of water quality less stringent than background is appropriate for this site requires a determination that the alternative level of water quality will not result in water quality less than that prescribed in the Basin Plan. Consistent with Resolution No. 92-49, a site may be closed if the Basin Plan requirements will be met within a reasonable period. In this particular case, Basin Plan requirements will likely be met within months to several years. That period of time is reasonable, however, because anticipated beneficial uses of water are protected by a large safety factor and will likely not be affected by petroleum constituents from Petitioners' unauthorized release.

The extensive active remediation performed at this site has resulted in removal of petroleum constituents to the maximum practicable extent. The remaining petroleum constituents detected in site groundwater do not present a risk to health, safety or the environment. Groundwater concentrations are likely to meet water quality objectives within months to several years for 1,2 DCA. Therefore, the time frame until regulatory compliance is reasonable given the specific circumstances of this case.

Contention 5: *Petitioners claim that they requested closure from the County on four separate occasions beginning in October of 2001, and that the County denied closure. Petitioners contend that the County violated the LOP contract because when denying Petitioners' request for closure, the County failed to notify Petitioners of their right to seek SWRCB review of the County's denial decision. Petitioners also contend that the County violated the LOP contract and applicable regulations because the appropriate LOP official did not sign the denial, despite the fact that Petitioners specifically directed the closure request to that official.*

quality of groundwater; the potential for health risks caused by human exposure; the potential damage to wildlife, crops, vegetation, and physical structures; and the persistence and permanence of potential effects.

Response: The LOP contract with the County for fiscal year 2002/03 contains the following provision:

“When a Responsible Party believes it has satisfactorily implemented the corrective action plan for a site and requests site closure, if Contractor denies that request, the following paragraph shall be included in Contractor’s letter to Responsible Party:

This decision is subject to appeal to the State Water Resources Control Board (SWRCB), pursuant to Section 25299.39.2(b) of the Health and Safety Code (Thompson-Richter Underground Storage Tank Reform Act – Senate Bill 562). Please contact the SWRCB Underground Storage Tank Program at (916) 341-5851 for information regarding the appeal process.”³²

Similar language has been included in the County’s LOP contract since fiscal year 1998/99. The County denied Petitioners’ requests for case closure in letters dated March 2, 1998, April 2, 2002, July 18, 2002, January 15, 2003, and January 16, 2003. None of the denial letters included the appeal language specified in the LOP contract. The County, therefore, violated this LOP contract provision on the dates identified above, except March 2, 1998.³³ On April 30, 2003, the SWRCB’s UST Program Manager sent a letter to the County reminding them of this contractual provision and asking them to ensure that all future denials of closure include the above-cited LOP contract provision.

These repeated LOP contract violations are serious. Petitioners performed extensive corrective action at this site over several years. Petitioners requested closure from the County on several occasions and were denied. Given Petitioners’ demonstrated commitment to obtaining closure, it appears to us that had the County informed Petitioners of the SWRCB petition process as required by the LOP contract, Petitioners might have sought SWRCB review of earlier County closure denials and begun the petition process sooner. It is imperative that the County comply with this LOP contract provision, as future violations could result in contract termination.

³² Senate Bill 562 appeals are site-closure petitions that are filed pursuant to Health and Safety Code section 25296.40.

³³ The LOP contract for fiscal year 1997/98, which was effective when the March 2, 1998 letter was issued, did not contain this contract provision.

On December 13, 2002, Petitioners directed their closure request to Thomas E. Franklin, Fire Marshal.³⁴ The County's response, which denied closure, was issued by Thomas Rejzek, the registered geologist overseeing corrective action at Petitioners' site. The LOP contract does not specify who at the County must sign the closure-denial letter. The regulations that govern site-closure petitions filed pursuant to Health and Safety Code section 25296.40 provide that before filing a petition with the SWRCB, the UST owner, operator or responsible party must request closure and be denied closure by the Executive Officer (if a regional board is overseeing corrective action) or by the Environmental Health Director or equivalent if a local agency is overseeing corrective action. (Cal. Code Regs., tit. 23, § 2814.6, subd. (b).). These regulations state that the closure-denial letter be signed by the Environmental Health Director or the equivalent before a site-closure petition may be filed, but the regulations do not impose a universal requirement that all closure denials be issued by these public officials. Thus, the County violated neither the LOP contract nor applicable regulations when Thomas Rejzek responded to Petitioners' December 13, 2002, request for closure.

The fact that the County's equivalent to an Environmental Health Director failed to sign the denial letter does not prevent the SWRCB from considering the petitions. As indicated earlier, Petitioners submitted two petitions to the SWRCB seeking site closure. One of the petitions was submitted pursuant to Health and Safety Code section 25296.40 and the other petition was submitted under SWRCB Resolution No. 88-23. The SWRCB adopted Resolution No. 88-23 in accordance with Health and Safety Code section 25297.1, subdivision (d), and petitions that are filed pursuant to SWRCB Resolution No. 88-23 are commonly referred to as LOP petitions. Resolution No. 88-23 states that a responsible party or an aggrieved person may petition the SWRCB for review of an action or decision of an LOP agency and does not specify that the local-agency action be made by a certain official. (SWRCB Resolution No. 88-23, Adoption of the Policy Regarding the Underground Storage Tank Pilot Program, Attachment 2, § (2)(A).) Additionally, Resolution No. 88-23 permits the SWRCB to review a petition on its own motion. (*Ibid.*)

³⁴ Out of the five requests for closure, this is the only request that was directed to the Fire Marshal.

Contention 6: *Petitioners contend that Thomas Rejzek, the County's registered geologist assigned to oversee corrective action at Petitioners' site, has a conflict of interest. According to Petitioners, Thomas Rejzek formerly worked at this site as a field geologist for Metcalf & Eddy (M&E). Petitioners further state that they and M&E disputed certain charges, and Petitioners terminated the M&E contract before they finished all phases of the corrective action plan. Petitioners contend that Thomas Rejzek is incapable of being objective when evaluating the effectiveness of the corrective action plan since he was formerly involved with implementing the corrective action plan when he was employed by M&E.*

Response: The record indicates that Thomas Rejzek was formerly employed by M&E, and that he worked as a field geologist at Petitioners' site. The record indicates that Thomas Rejzek logged certain borings and monitor wells at Petitioners' site. David M. Bernal, another M&E employee, was a registered geologist overseeing the work at Petitioners' site. David Bernal developed the site conceptual model, upon which the corrective action plan was based. Other than logging the wells during the soil and water investigation, the record does not indicate other tasks that Thomas Rejzek completed or the types of decisions he was responsible for making. The corrective action plan itself offers some insight about the respective duties of the registered geologist and the field personnel, which appears to have included Thomas Rejzek. The corrective action plan provides the following:

“The field work was performed under the direct supervision of a California State Registered Geologist, who communicated site requirements to all personnel, oversaw drilling and sampling activities, and informed the field leader of any changes in the field requirements. The field leader, an M&E staff Geologist, was responsible for coordinating the field investigation team and drilling and tank removal subcontractors, documenting and maintaining accurate records and logs, implementing quality control measures, and ensuring that all health and safety requirements were followed by field personnel.”

This contention raises the issue of due process, which includes the right to an impartial decision maker. (*Hall v. Harker* (1999) 69 Cal.App.4th 836, 841, 82 Cal.Rptr.2d. 44.) Due process applies to administrative proceedings as well as to judicial proceedings. (*Burrell v. City of Los Angeles* (1989) 209 Cal.App.3d 568, 582, 257 Cal.Rptr. 427.)

When making a claim for unconstitutional bias, a plaintiff must "overcome a presumption of honesty and integrity" on the part of decision-makers, and show that the adjudicator "has prejudged, or reasonably appears to have prejudged, an issue." (*Withrow v. Larkin* (1975) 421 U.S. 35, 95 S.Ct. 1456, 1464; *Kenneally v. Lungren* (9th Cir.1992) 967 F.2d 329, 333.)

There are two ways in which a person may establish that he or she has been denied the constitutional right to a fair hearing before an impartial tribunal. The proceedings and surrounding circumstances may demonstrate actual bias on the part of the adjudicator. (*Stivers v. Pierce* (1995) 71 F.3d 732, 741, citing *Taylor v. Hayes* (1974), 418 U.S. 488, 501-04, 94 S.Ct. 2697, 2704-06). In other cases, an adjudicator's pecuniary or personal interest in the outcome of the proceedings may create an appearance of partiality that violates due process, even without any showing of actual bias. (*Stivers, supra*, 71 F.3d 732 at p. 741, citing *Gibson v. Merryhill* (1973), 411 U.S. 564, 93 S.Ct. 1689, 1697-98).

The record does not indicate that Thomas Rejzek has either a pecuniary or personal interest in the outcome of Petitioners' UST case. The circumstances surrounding Thomas Rejzek's involvement with Petitioners and their site do not indicate that an actual bias exists, either. The record does not indicate that Thomas Rejzek's decisions to deny closure were based upon personal animosity rather than the merits of Petitioners' case. The fact that Thomas Rejzek was previously involved at Petitioners' site as an employee of M&E and the fact that M&E and Petitioners may have ended their business relationship on less-than-amicable terms do not amount to a showing of actual bias.

The record shows that Thomas Rejzek logged certain borings and monitor wells. These logs appear to have been prepared during the soil and water investigation, and not during the

implementation of the corrective action plan. Petitioners' assertion, that Thomas Rejzek was incapable of being objective when evaluating the effectiveness of the corrective action plan, is not supported by the evidence in the record.

The record does not demonstrate a legal basis to support a finding of actual bias or an appearance of bias. Nor does the record support a finding that Thomas Rejzek was incapable of objectively reviewing the effectiveness of the implementation of the corrective action plan. Therefore, Petitioners' due process rights have not been violated.³⁵

Contention 7: *Petitioners contend that both Thomas Rejzek and Kate Sulka, supervisor of the Santa Barbara County Protection Services Division Hazardous Materials, have violated provisions of the Geologists and Geophysicists Act (Act), which is codified at Business and Professions Code, Chapter 12.5 (commencing with section 7800). Inasmuch as the LOP contract requires the County to comply with all applicable state laws, Petitioners contend that the County's violations of the Act result in noncompliance with the LOP contract.*

Response: Petitioners correctly point out that the LOP contract requires the County to comply with all applicable state laws, rules, regulations and local ordinances. (Exhibit A, Provision No. 3.) The LOP contract also specifically requires the County to obtain the services of a registered geologist or professional engineer to comply with the applicable requirements of the California Business and Professions Code for engineering and geologic analyses. (*Ibid.*) Therefore, if Thomas Rejzek or Kate Sulka violated provisions of the Act, then the County could be considered out of compliance with the above-referenced LOP contract provisions. The record indicates that in April of 2003, Petitioners filed complaints against Thomas Rejzek and Kate Sulka with the California Board of Geologists and Geophysicists (Geologists Board). This is the appropriate licensing board to review the alleged misconduct, so we will not review the purported violations of

³⁵ The County has adopted civil service rules, which, among other things, prohibit incompatible activities by County officials and employees. County employees may not engage in any employment or activity that is inconsistent or incompatible with the employee's duties as a County employee. (Santa Barbara County Civil Service Rules, Rule 17.) While we defer to the County to interpret its own civil service rules, the incompatible-activity rule appears to bar County employees from performing incompatible activities during the time that the employee is employed by the County, and does not appear to address the situation at hand.

the Act. Instead, we direct staff to monitor the outcome of these complaints made to the Geologists Board. If the Geologists Board determines that Thomas Rejzek or Kate Sulka violated the Act, then staff should consider whether the violations on the part of either or both amount to a violation by the County of the LOP contract. If staff conclude that the County violated the LOP contract, then staff shall terminate the contract or, before renewing the LOP contract, shall require the County to demonstrate how the County will avoid similar violations in the future.

IV. Conclusions

1. Shallow groundwater beneath Petitioners' site meets Basin Plan water quality objectives for all petroleum constituents except 1,2 Dichloroethane. In November 2002, the highest measured groundwater concentration of 1,2 DCA was 0.88 ppb in MW-2. The MCL for 1,2 DCA is 0.5 ppb.

2. MW-2 is screened in shallow groundwater, downgradient from the source zone. If trends continue, groundwater in MW-2 will meet water quality objectives for all petroleum constituents within months to several years.

3. The nearest private water supply well is located approximately 200 feet away in the downgradient direction from MW-2, is inactive, and is screened in the Santa Barbara Formation, a deeper confined water bearing aquifer. Shallow groundwater in the vicinity of the site is hydraulically separated from this deeper, confined groundwater. The construction of this inactive private water supply well allows groundwater to flow from the overlying shallow alluvium into the main drinking water aquifer. Due to the low contaminant concentrations at the site and depth to the nearest water supply well, it is unlikely that groundwater at the well is or will be affected by the 1,2 DCA detected in the groundwater at Petitioners' site.

4. The level of site cleanup, including removal of the UST system, soil excavation, soil vapor extraction, chemical oxidation and natural attenuation processes of adsorption, dilution and dispersion, has reduced 1,2 DCA concentrations in groundwater to the maximum practical extent. Given the extensive amount of remedial action already undertaken, the cost of further

reductions in concentration levels outweighs any benefits. The site now presents a low risk to human health, safety, and the environment. No further corrective action is necessary for the releases from the former UST system at the site.

5. Determination of the length of time that constitutes a reasonable period to attain water quality objectives is based on evaluation of site specific conditions. These conditions include but are not limited to the extent and gravity of any threat to public health and the environment during the period required to meet Basin Plan objectives. Although the time required to attain objectives for 1,2 DCA in groundwater at the site is months to several years, it is a reasonable period of time considering the facts of this particular case.

6. The County violated the LOP contract when it failed to include in their closure-denial letters the appeal language specified in the LOP contract. The County violated neither the LOP contract nor applicable regulations when someone other than the equivalent of the Environmental Health Director issued the January 15, 2003, closure denial.

7. The record does not demonstrate a legal basis to support a finding of actual bias or an appearance of bias on the part of Thomas Rejzek. Nor does the record indicate that Thomas Rejzek was incapable of objectively reviewing the effectiveness of the implementation of the corrective action plan.

8. If the California Board of Geologists and Geophysicists determines that County staff violated provisions of the Geologist and Geophysicists Act, and if SWRCB staff determine that the licensing violations amount to a violation by the County of the LOP contract, then staff shall either terminate the LOP contract or require the County to demonstrate how future violations will be avoided.

9. The above conclusions are based on the site-specific information relative to this particular case.

V. ORDER

IT IS HEREBY ORDERED THAT Petitioners' UST case be closed, and no further action related to the release be required. The Chief of the Division of Water Quality is directed to issue Petitioners a uniform closure letter consistent with Health and Safety Code section 25296.10, subdivision (g).

CERTIFICATION

The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on September 16, 2003.

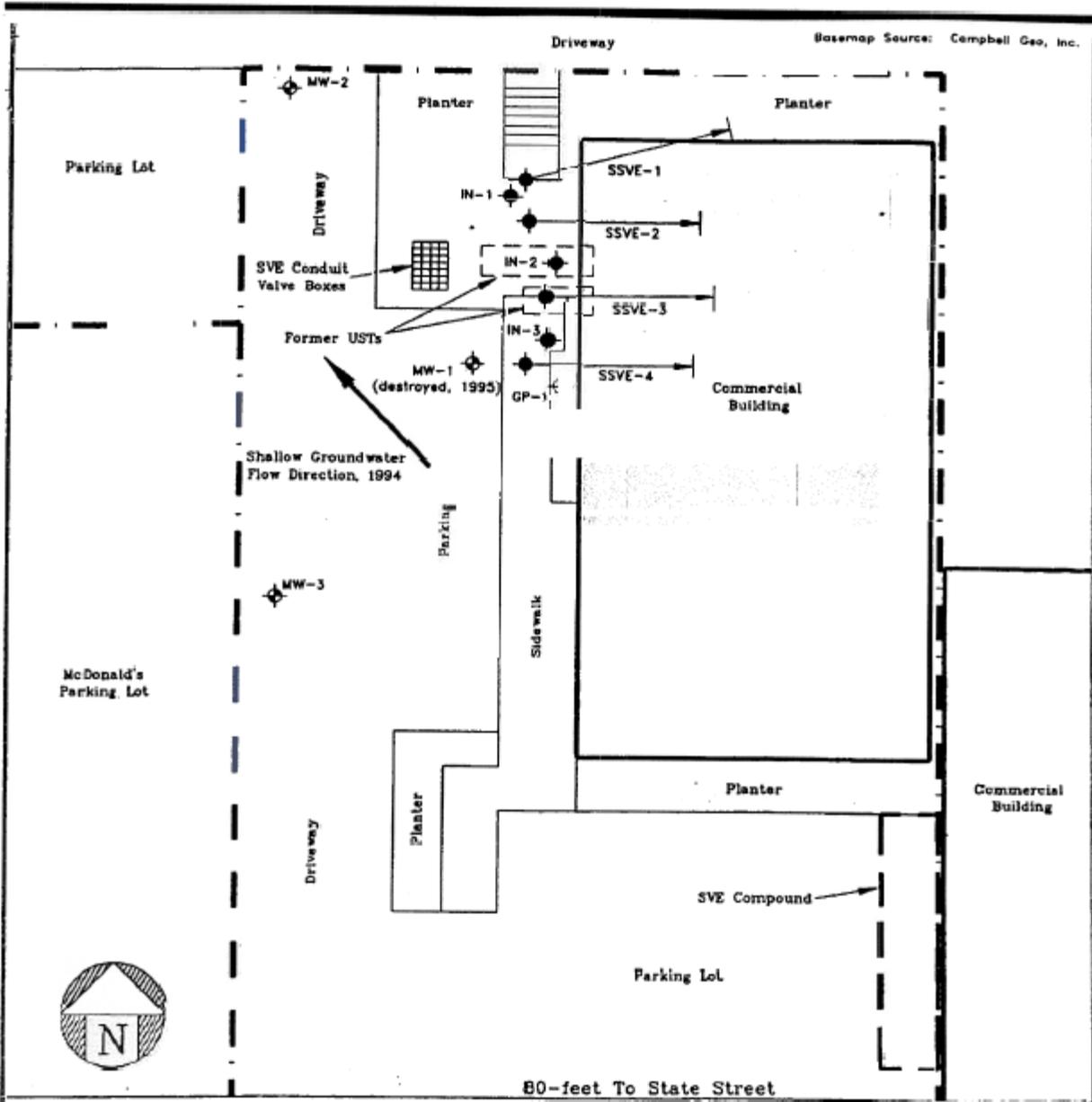
AYE: Arthur G. Baggett, Jr.
Peter S. Silva
Richard Katz
Gary M. Carlton
Nancy H. Sutley

NO: None.

ABSENT: None.

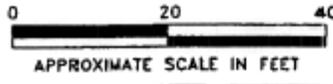
ABSTAIN: None.


Debbie Irvin
Clerk to the Board



LEGEND

- GP-1 Verification Soil Boring Location
- MW-2 Monitoring Well Location
- SSVE-3 Slant Vapor Extraction Well
- IN-1 Air Inlet Well
- Property Boundary



<p>FIGURE 2 - Site Features Map Former Murphy Property 3938 State Street Santa Barbara, California</p> <p>Remediation Testing and Design 609 Pacific Avenue, Suite 201 Santa Cruz, California 95060 Phone: (831) 458-1612 Fax: (831) 458-1509</p>	Designed by: HEW
	Job number: 2K0298-1
	Rev. Date: Dec. 6, 2002
	File Name: BASE.DWG
	Sheet 1 of 1